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EXAMINER

CHOUDHURY, AZIZUL Q

ART UNIT

PAPER NUMBER

2145

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/25/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

09/972,310

Applicant(s)

AXBERG ET AL.

Examiner

Azizul Choudhury

Art Unit

2145

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 August 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

***Detailed Action***

This office action is in response to the correspondence received on August 25, 2006.

***Response to Amendment***

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crockett et al (US Pat No: 5,504,861) in view of Callon et al (US Pat No: 6,999,459), hereafter referred to as Crockett and Callon, respectively.

1. With regards to claim 1, Crockett teaches through Callon, a system for managing network components, including storage devices and digital data processors, comprising: a first component that maintains a first representation of a topology

of the storage devices and digital data processors in the network and that generates an event notification indicative of a change to the topology with respect to the network; a second component in communication with the first component the second component maintaining a second representation of the topology and responding to the event notification by accessing the first representation; determining a discrepancy between the event notification and an attribute of any of the first and second representations; selectively disregarding the event notification or recovering the second representation from one or more attributes of the first representation in response to determining the discrepancy (Crockett teaches a design allowing for data shadowing to provide for data recovery. The design features two hosts (Figure 4, elements 401 and 411, Crockett). The two hosts are updated against one another so that both feature full recovery capabilities (column 2, lines 58-62, Crockett). Plus, means for detection of errors (events) are present and are capable of triggering synchronization between the primary and secondary hosts (column 7, lines 34-44, Crockett). However, Crockett does not explicitly teach the storage of network topology information.

In the same field of endeavor, Callon also teaches a network recovery design. In Callon's disclosure, it is taught that network recovery designs use network topology databases and store network topology (column 7, lines 37-39, Callon). Therefore, it would have been obvious to one skilled in the art, during the time of the invention, to have combined the teachings of Crockett with those

of Callon, for facilitating recovery from communication link failures in a digital data network (column 1, lines 10-11, Callon)).

2. With regards to claim 2, Crockett teaches the system wherein the network further includes a plurality of hosts, each coupled with one or more storage devices over the network; one or more agents each associated with one or more of the hosts, each agent generating a scan identifying attributes of any of (i) the host with which it is associated, (ii) one or more of the storage units to which that host is coupled, and (iii) a relationship therebetween; and wherein the agents are in communication coupling with the first component, wherein the agents transmit the scan to the first component (Crockett teaches a design allowing for data shadowing to provide for data recovery. The design features two hosts (Figure 4, elements 401 and 411, Crockett). The two hosts are updated against one another so that both feature full recovery capabilities (column 2, lines 58-62, Crockett). Plus, means are present by which to check and ensure that the data being copied are correct (column 9, line 52 – column 10, line 9 and column 10, line 54 – column 11, line 37, Crockett). In addition, since data is checked at each host, it is inherent that agents/daemons are present within the design).
3. With regards to claim 3, Crockett teaches the system wherein the agents transmit the scans to the first component asynchronously with respect to one another (In Crockett's design, means are present by which to check and ensure (scan) that

the data being copied are correct (column 9, line 52 – column 10, line 9 and column 10, line 54 – column 11, line 37, Crockett). In addition, since data is checked at each host, it is inherent that agents/daemons are present within the design).

4. With regards to claim 4, Crockett teaches the system wherein the first representation comprises scans received from the one or more agents (In Crockett's design, means are present by which to check and ensure (scan) that the data being copied are correct (column 9, line 52 – column 10, line 9 and column 10, line 54 – column 11, line 37, Crockett). In addition, since data is checked at each host, it is inherent that agents/daemons are present within the design).
5. With regards to claim 5, Crockett teaches the system wherein the hosts comprise digital data processors and the agents execute on the host digital data processors (Crockett's design features processors (column 3, lines 15-39, Crockett). Plus, since data is checked at each host, it is inherent that agents/daemons are present within the design).
6. With regards to claim 6, Crockett teaches the system wherein the network comprises a first network, further comprising a manager digital data processor that is coupled to the host digital data processors by via a second network,

wherein the first and second components execute in connection with the manager digital data processor (Crockett's design features processors (column 3, lines 15-39, Crockett). The two hosts of Crockett's design are connected (Figure 4, element 408, Crockett)).

7. With regards to claims 7 and 11, Crockett teaches the system further comprising functionality that recovers the second representation by performing at least one of the following operations: i) clearing the second representation and rebuilding that representation from attributes of the first representation; ii) comparing the first and second representations in whole or in part, and copying from the first representation to the second representation attributes missing from the latter, while any of deleting or marking as missing attributes in the second representation indicative of components present in the second representation but not in the first representation; and iii) copying from the first representation to the second representation one or more attributes indicative of any of (a) a component or relationships represented by an attribute in connection with which the discrepancy occurred, and (b) a component or relationship in a region represented by an attribute in connection with which the discrepancy occurred (Crockett teaches a design allowing for data shadowing to provide for data recovery. The design features two hosts (Figure 4, elements 401 and 411, Crockett). The two hosts are updated against one another so that both feature full recovery capabilities (column 2, lines 58-62, Crockett). Plus, means for

detection of errors (events) are present and are capable of triggering synchronization between the primary and secondary hosts (column 7, lines 34-44, Crockett). Plus, means are present by which to check and ensure (scan) that the data being copied are correct (column 9, line 52 – column 10, line 9 and column 10, line 54 – column 11, line 37, Crockett).

8. With regards to claim 8, Crockett teaches a system for managing a network of components, including storage devices and digital data processors, comprising: a first component that maintains a first representation of a topology of the storage devices and digital data processors in the network and that generates an event notification indicative of a change to the topology with respect to the network; a second component in communication with the first component and responding to the event notification by: accessing the first representation; disregarding the event notification in response to determining at least one of: i) the event notification is indicative of addition of a new component to the network and an attribute of the first representation is indicative of absence of that component from the topology; ii) the event notification is indicative of addition of a relationship between components of the topology and an attribute of the first representation is indicative of absence of that relationship from the topology; iii) the event notification is indicative of addition of a relationship between components of the topology and an attribute of the second representation is indicative of the absence from the topology of one of the components to that



relationship; iv) the event notification is indicative of a missing component of the topology and an attribute of the second representation indicative of the absence of that component from the topology; v) the event notification is indicative of a missing component of the topology and an attribute of the second representation indicates representation of that component in the second representation, but the absence of that component from the topology; vi) the event notification is indicative of a missing relationship between components of the topology and an attribute of the second representation indicative of an absence of that relationship in the second representation; or vii) the event notification is indicative of a missing relationship in the topology and an attribute of the second representation indicates inclusion of that relationship in the second representation, but the absence of that component from the topology (Crockett teaches a design allowing for data shadowing to provide for data recovery. The design features two hosts (Figure 4, elements 401 and 411, Crockett). The two hosts are updated against one another so that both feature full recovery capabilities (column 2, lines 58-62, Crockett). Plus, means for detection of errors (events) are present and are capable of triggering synchronization between the primary and secondary hosts (column 7, lines 34-44, Crockett). Plus, means are present by which to check and ensure (scan) that the data being copied are correct (column 9, line 52 – column 10, line 9 and column 10, line 54 – column 11, line 37, Crockett).

9. With regards to claim 9, Crockett teaches a system for managing a network of components, including storage devices and digital data processors, comprising: a first component that maintains a first representation of a topology of the storage devices and digital data processors in the network and that generates an event notification indicative of a change to the topology with respect to the network; a second component in communication with the first component, the second element maintaining a second representation of the topology and responding to the event notification by accessing the first representation; determining a discrepancy between the event notification and an attribute of any of the first and second representations; and selectively recovering the second representation from one or more attributes of the first representation in response to the determining at least one of: i) the event notification is indicative of addition of a new component to the topology and an attribute of the first representation is indicative of the presence of that component; ii) the event notification is indicative of addition of a relationship between components of the topology and an attribute of the second representation is indicative of the presence of that relationship; iii) the event notification is indicative of modification of an attribute of a component of the topology and an attribute of the second representation is indicative of the absence from the topology of that component; or iv) the event notification is indicative of modification of an attribute of a component of the topology and an attribute of the second representation indicative of inclusion of that component in the second representation but its absence from the topology (Crockett teaches a

design allowing for data shadowing to provide for data recovery. The design features two hosts (Figure 4, elements 401 and 411, Crockett). The two hosts are updated against one another so that both feature full recovery capabilities (column 2, lines 58-62, Crockett). Plus, means for detection of errors (events) are present and are capable of triggering synchronization between the primary and secondary hosts (column 7, lines 34-44, Crockett). Plus, means are present by which to check and ensure (scan) that the data being copied are correct (column 9, line 52 – column 10, line 9 and column 10, line 54 – column 11, line 37, Crockett).

10. With regards to claim 10, Crockett teaches a method of managing a network of components, including storage devices and digital data processors, comprising: maintaining a first representation of a topology of the storage devices and digital data processors in the network and generating an event notification indicative of a change to the topology with respect to the network; maintaining a second representation of the topology and responding to the event notification by: accessing the first representation; determining a discrepancy between the event notification and an attribute of any of the first and second representations; and selectively disregarding the event notification or recovering the second representation from one or more attributes of the first representation in response to determining the discrepancy (Crockett teaches a design allowing for data shadowing to provide for data recovery. The design features two hosts (Figure 4,

elements 401 and 411, Crockett). The two hosts are updated against one another so that both feature full recovery capabilities (column 2, lines 58-62, Crockett). Plus, means for detection of errors (events) are present and are capable of triggering synchronization between the primary and secondary hosts (column 7, lines 34-44, Crockett). Plus, means are present by which to check and ensure (scan) that the data being copied are correct (column 9, line 52 – column 10, line 9 and column 10, line 54 – column 11, line 37, Crockett).

11. With regards to claim 12, Crockett teaches the method wherein determining the discrepancy that results in selectively disregarding the event notification comprises determining an event notification indicative of addition of a new component to the topology and an attribute of the first representation indicative of absence of the new component (Means are present in Crockett's design by which to check and ensure (scan) that the data being copied are correct (column 9, line 52 – column 10, line 9 and column 10, line 54 – column 11, line 37, Crockett)).

12. With regards to claim 13, Crockett teaches the method further comprising:  
determining an event notification indicative of addition of a new component to the topology and an attribute of the first representation indicative of absence of the new component; and determining whether the new component is in the second representation in response to determining that the new component is absent from

the first representation; and; updating the second representation to indicate the component's status is suspect in response to determining that the new component is in the second representation Crockett teaches a design allowing for data shadowing to provide for data recovery. The design features two hosts (Figure 4, elements 401 and 411, Crockett). The two hosts are updated against one another so that both feature full recovery capabilities (column 2, lines 58-62, Crockett). Plus, means for detection of errors (events) are present and are capable of triggering synchronization between the primary and secondary hosts (column 7, lines 34-44, Crockett). Plus, means are present by which to check and ensure (scan) that the data being copied are correct (column 9, line 52 – column 10, line 9 and column 10, line 54 – column 11, line 37, Crockett)).

13. With regards to claim 14, Crockett teaches the method wherein determining the discrepancy that results in performing the recovery operation on the second representation comprises determining an event notification indicative of addition of a new component to the topology and an attribute of the first representation indicative of the presence of the new component (Means for detection of errors (events) are present and are capable of triggering synchronization between the primary and secondary hosts (column 7, lines 34-44, Crockett). Plus, means are present by which to check and ensure (scan) that the data being copied are correct (column 9, line 52 – column 10, line 9 and column 10, line 54 – column 11, line 37, Crockett)).

14. With regards to claim 15, Crockett teaches the method wherein determining the discrepancy that results in selectively disregarding the event notification comprises determining an event notification indicative of addition of a relationship between components of the topology and an attribute of the first representation indicative of absence of the relationship (Means for detection of errors (events) are present and are capable of triggering synchronization between the primary and secondary hosts (column 7, lines 34-44, Crockett). Plus, means are present by which to check and ensure (scan) that the data being copied are correct (column 9, line 52 – column 10, line 9 and column 10, line 54 – column 11, line 37, Crockett). In addition, since means are present by which to make notifications, official notice is hereby taken for it is obvious to one skilled in the art to disregard a notification).

15. With regards to claim 16, Crockett teaches the method wherein determining the discrepancy that results in performing the recovery operation on the second representations comprises determining an event notification indicative of addition of a relationship between components of the topology and an attribute of the second representation indicative of the presence of that relationship (Means for detection of errors (events) are present and are capable of triggering synchronization between the primary and secondary hosts (column 7, lines 34-44, Crockett). Plus, means are present by which to check and ensure (scan) that

the data being copied are correct (column 9, line 52 – column 10, line 9 and column 10, line 54 – column 11, line 37, Crockett)).

16. With regards to claim 17, Crockett teaches the method wherein determining the discrepancy that results in selectively disregarding the event notification comprises determining an event notification indicative of addition of a relationship between components of the topology and an attribute of the second representation indicative of the absence from the topology of one of the components to that relationship (Means for detection of errors (events) are present and are capable of triggering synchronization between the primary and secondary hosts (column 7, lines 34-44, Crockett). Plus, means are present by which to check and ensure (scan) that the data being copied are correct (column 9, line 52 – column 10, line 9 and column 10, line 54 – column 11, line 37, Crockett)).

17. With regards to claim 18, Crockett teaches the method wherein determining the discrepancy that results in performing the recovery operation on the second representations comprises determining an event notification indicative of modification of an attribute of a component of the topology and an attribute of the second representation indicative of the absence from the topology of that component (Means for detection of errors (events) are present and are capable of triggering synchronization between the primary and secondary hosts (column

7, lines 34-44, Crockett). Plus, means are present by which to check and ensure (scan) that the data being copied are correct (column 9, line 52 – column 10, line 9 and column 10, line 54 – column 11, line 37, Crockett)).

18. With regards to claim 19, Crockett teaches the method wherein determining the discrepancy that results in performing the recovery operation on the second representation comprises determining an event notification indicative of modification of an attribute of a component of the topology and an attribute of the second representation indicating presence of representation of that component in the second representation but its absence from the topology (Means for detection of errors (events) are present and are capable of triggering synchronization between the primary and secondary hosts (column 7, lines 34-44, Crockett). Plus, means are present by which to check and ensure (scan) that the data being copied are correct (column 9, line 52 – column 10, line 9 and column 10, line 54 – column 11, line 37, Crockett)).

19. With regards to claim 20, Crockett teaches the method wherein determining the discrepancy that results in selectively disregarding the event notification comprises determining an event notification indicative of a missing component of the topology and an attribute of the second representation indicative of the absence of that component from the topology (Means for detection of errors (events) are present and are capable of triggering synchronization between the



primary and secondary hosts (column 7, lines 34-44, Crockett). Plus, means are present by which to check and ensure (scan) that the data being copied are correct (column 9, line 52 – column 10, line 9 and column 10, line 54 – column 11, line 37, Crockett)).

20. With regards to claim 21, Crockett teaches the method wherein determining the discrepancy that results in selectively disregarding the event notification comprises determining an event notification indicative of a missing component of the topology and an attribute of the second representation indicates inclusion of that component in the second representation, but the absence of that component from the topology (Means for detection of errors (events) are present and are capable of triggering synchronization between the primary and secondary hosts (column 7, lines 34-44, Crockett). Plus, means are present by which to check and ensure (scan) that the data being copied are correct (column 9, line 52 – column 10, line 9 and column 10, line 54 – column 11, line 37, Crockett)).

21. With regards to claim 22, Crockett teaches the method wherein determining the discrepancy that results in selectively disregarding the event notification comprises determining an event notification indicative of a missing relationship between components of the topology and an attribute of the second representation indicative of absence of that relationship in the second representation (Means for detection of errors (events) are present and are

capable of triggering synchronization between the primary and secondary hosts (column 7, lines 34-44, Crockett). Plus, means are present by which to check and ensure (scan) that the data being copied are correct (column 9, line 52 – column 10, line 9 and column 10, line 54 – column 11, line 37, Crockett)).

22. With regards to claim 23, Crockett teaches the method wherein determining the discrepancy that results in selectively disregarding the event notification comprises determining an event notification indicative of a missing relationship in the topology and an attribute of the second representation indicates inclusion of that relationship in the second representation, but the absence of that component from the topology (Means for detection of errors (events) are present and are capable of triggering synchronization between the primary and secondary hosts (column 7, lines 34-44, Crockett). Plus, means are present by which to check and ensure (scan) that the data being copied are correct (column 9, line 52 – column 10, line 9 and column 10, line 54 – column 11, line 37, Crockett)).

23. The obviousness motivation applied to claims 1 is applicable towards claims 2-23

### ***Response to Remarks***

The correspondence received on August 25, 2006 has been reviewed but is not deemed fully persuasive. In lieu of the arguments presented, the final office action has

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been withdrawn and a new search has been performed. More pertinent prior art has been found during the search and has been applied to the current office action.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Azizul Choudhury whose telephone number is (571) 272-3909. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Cardone can be reached on (571) 272-3933. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AC

  
JASON CARDONE  
SUPERVISORY PATENT EXAMINER